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PRC

PRELIMINARY ASSESSMENT/ VISUAL SITE INSPECTION

PPG INDUSTRIES, INC., WORKS NO. 26 CRESTLINE, OHIO OHD 004 199 030

FINAL REPORT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, DC 20460

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EPA Region	:	5
Site No.	:	OHD 004 199 030
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EXECUTIVE SUMMARY

PRC Environmental Management, Inc. (PRC), performed a preliminary assessment and visual site inspection (PA/VSI) to identify and assess the existence and likelihood of releases from solid waste management units (SWMU) and other areas of concern (AOC) at the PPG Industries, Inc., Works No. 26 (PPG), facility in Crestline, Ohio. This summary highlights the results of the PA/VSI and the potential for releases of hazardous wastes or hazardous constituents from SWMUs and AOCs identified. In addition, a completed U.S. Environmental Protection Agency (EPA) Preliminary Assessment Form (EPA Form 2070-12) is included in Attachment A to assist in prioritization of RCRA facilities for corrective action.

The PPG facility purchases raw glass blocks from other PPG Industries, Inc., plants in different parts of the United States and fabricates automotive and aircraft window glass for major corporations. PPG plant production processes involve 35 separate operations, including cutting, edging, drilling, painting, tempering, and soldering. These operations are currently being upgraded to utilize computer-controlled cutting, edging, drilling, painting, and tempering furnaces. At the PPG facility, cutting, edging, and drilling of glass is referred to as the cold process. Painting the glass with ceramic bands and silver heating grids is referred to as the screening process. Tempering and soldering are referred to as the hot process.

The PPG facility currently generates both hazardous and nonhazardous wastes. The hazardous wastes include painted waste glass, known as painted cullet (D008), paint rags (D008, D006, and D001), solvent rags (D001), alcohol rags (D028), waste paints (D006 and D008), and waste solvents (D001, D039, F002, F003, and F005) from the screening process and hot process, and from routine equipment cleaning. The nonhazardous wastes generated include waste glass (cullet) and wash water from the cold process, sludge from coolant recovery and process wastewater and sewage treatment operations, waste oil from machine maintenance, and garbage (including paper and boxes) from routine plant operations.

The PPG facility has operated at its current location since 1959 and employs about 700 people. The facility occupies approximately 50 acres in a rural area. In August 1980, PPG submitted a Notification of Hazardous Waste Activity to EPA as a generator and treatment, storage, or disposal facility. In November 1980, the facility submitted a RCRA Part A permit or application. In September 1984, EPA approved PPG's request for generator-only status. The facility currently operates as a large-quantity generator storing wastes for less than 90 days. PPG has a National Pollutant Discharge Elimination System (NPDES) permit to discharge treated process water and sewage into an unnamed tributary near the facility. The facility also has a permit to operate baghouses for controlling particulate air emissions. The Ohio Environmental

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Protection Agency (OEPA) conducted several inspections at the PPG facility. The facility had minor RCRA and NPDES permit compliance problems. Some of these compliance problems included lack of "danger," "no smoking," or "no open flames" signs at certain locations. PPG took appropriate actions to comply with the applicable regulations and was notified of compliance by OEPA.

The PA/VSI identified the following six SWMUs and two AOCs at the facility:

Solid Waste Management Units

1. Hazardous Waste Storage Area
2. Storage Hopper
3. Rag Compactor
4. Baghouse Unit
5. Acid Neutralization System
6. Former Hazardous Waste Storage Area

Areas of Concern

1. Outfall 001
2. Outfall 001 and an Unnamed Tributary

SWMUs 1, 2, and 3 are currently active. SWMUs 4, 5, and 6 were removed from the facility several years ago. SWMUs 5 and 6 were not closed properly. The AOCs identified during the PA/VSI are considered to have low release potential because PPG implemented corrective actions at these AOCs in response to two documented releases (cyanide and fuel oil). The most recent analytical data (July 1986) showed detectable levels of cyanide in only four soil samples out of 24 at AOC 1. PRC has yet to receive sampling and analytical data for AOC 2 from PPG. These data will have to be reviewed to evaluate AOC 2.

The PPG facility is not located in a 100-year flood plain. The nearest surface water body, unnamed tributary to Paramour Creek, is approximately 0.33 mile east of the facility and is used for agricultural and industrial purposes. Ground water is used as agricultural water supply. The nearest drinking water well is 1 mile east and downgradient of the facility. No sensitive environments are on site. The nearest wetland area is 0.33 mile east of the facility. The potential for releases from the SWMUs to all environmental media is low. PRC recommends no further action for SWMUs 1, 2, 3, and 4. SWMUs 5 and 6 should be closed properly. PRC recommends that additional sampling and analysis be performed at AOC 1 for total cyanide in soil to reevaluate the AOC. PRC also recommends that analytical data for AOC 2 should be reviewed and the AOC be reevaluated.

1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC), received Work Assignment No. C05087 from the U.S. Environmental Protection Agency (EPA) under Contract No. 68-W9-0006 (TES 9) to conduct preliminary assessments (PA) and visual site inspections (VSI) of hazardous waste treatment and storage facilities in Region 5.

As part of the EPA Region 5 Environmental Priorities Initiative, the RCRA and CERCLA programs are working together to identify and address RCRA facilities that have a high priority for corrective action using applicable RCRA and CERCLA authorities. The PA/VSI is the first step in the process of prioritizing facilities for corrective action. Through the PA/VSI process, enough information is obtained to characterize a facility's actual or potential releases to the environment from solid waste management units (SWMU) and areas of concern (AOC).

A SWMU is defined as any discernible unit at a RCRA facility in which solid wastes have been placed and from which hazardous constituents might migrate, regardless of whether the unit was intended to manage solid or hazardous waste.

The SWMU definition includes the following:

- RCRA-regulated units, such as container storage areas, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators, and underground injection wells
- Closed and abandoned units
- Recycling units, wastewater treatment units, and other units that EPA has generally exempted from standards applicable to hazardous waste management units
- Areas contaminated by routine and systematic releases of wastes or hazardous constituents. Such areas might include a wood preservative drippage area, a loading-unloading area, or an area where solvent used to wash large parts has continually dripped onto soils.

An AOC is defined as any area where a release to the environment of hazardous waste or constituents has occurred or is suspected to have occurred on a nonroutine and nonsystematic basis. This includes any area where such a release in the future is judged to be a strong possibility.

The purpose of the PA is as follows:

- Identify SWMUs and AOCs at the facility
- Obtain information on the operational history of the facility
- Obtain information on releases from any units at the facility
- Identify data gaps and other informational needs to be filled during the VSI

The PA generally includes review of all relevant documents and files located at state offices and at the EPA Region 5 office in Chicago.

The purpose of the VSI is as follows:

- Identify SWMUs and AOCs not discovered during the PA
- Identify releases not discovered during the PA
- Provide a specific description of the environmental setting
- Provide information on release pathways and the potential for releases to each medium
- Confirm information obtained during the PA regarding operations, SWMUs, AOCs, and releases

The VSI includes interviewing appropriate facility staff, inspecting the entire facility to identify all SWMUs and AOCs, photographing all visible SWMUs, identifying evidence of releases, initially identifying potential sampling parameters and locations, if needed, and obtaining all information necessary to complete the PA/VSI report.

This report documents the results of a PA/VSI of the PPG Industries, Inc., Works No. 26 (PPG), facility in Crestline, Ohio. The PA was completed on January 8, 1992. PRC gathered and reviewed information from the Ohio Environmental Protection Agency (OEPA) and from EPA Region 5 RCRA files. The VSI was conducted on January 23, 1992. It included interviews with PPG facility representatives and a walk-through inspection of the facility. Six SWMUs and two AOCs were identified at the facility.

PRC completed EPA Form 2070-12 using information gathered during the PA/VSI. This form is included in Attachment A. The VSI is summarized and six inspection photographs are included in Attachment B. Field notes from the VSI are included in Attachment C.

2.0 FACILITY DESCRIPTION

This section describes the facility's location, past and present operations (including waste management practices), waste generating processes, history of documented releases, regulatory history, environmental setting, and receptors.

2.1 FACILITY LOCATION

The PPG facility is located at 5066 State Route 30 in Crestline, Richland County, Ohio (latitude 40° 47' 30" N and longitude 82° 42' 30" W), as shown in Figure 1. The facility occupies approximately 50 acres in a rural area.

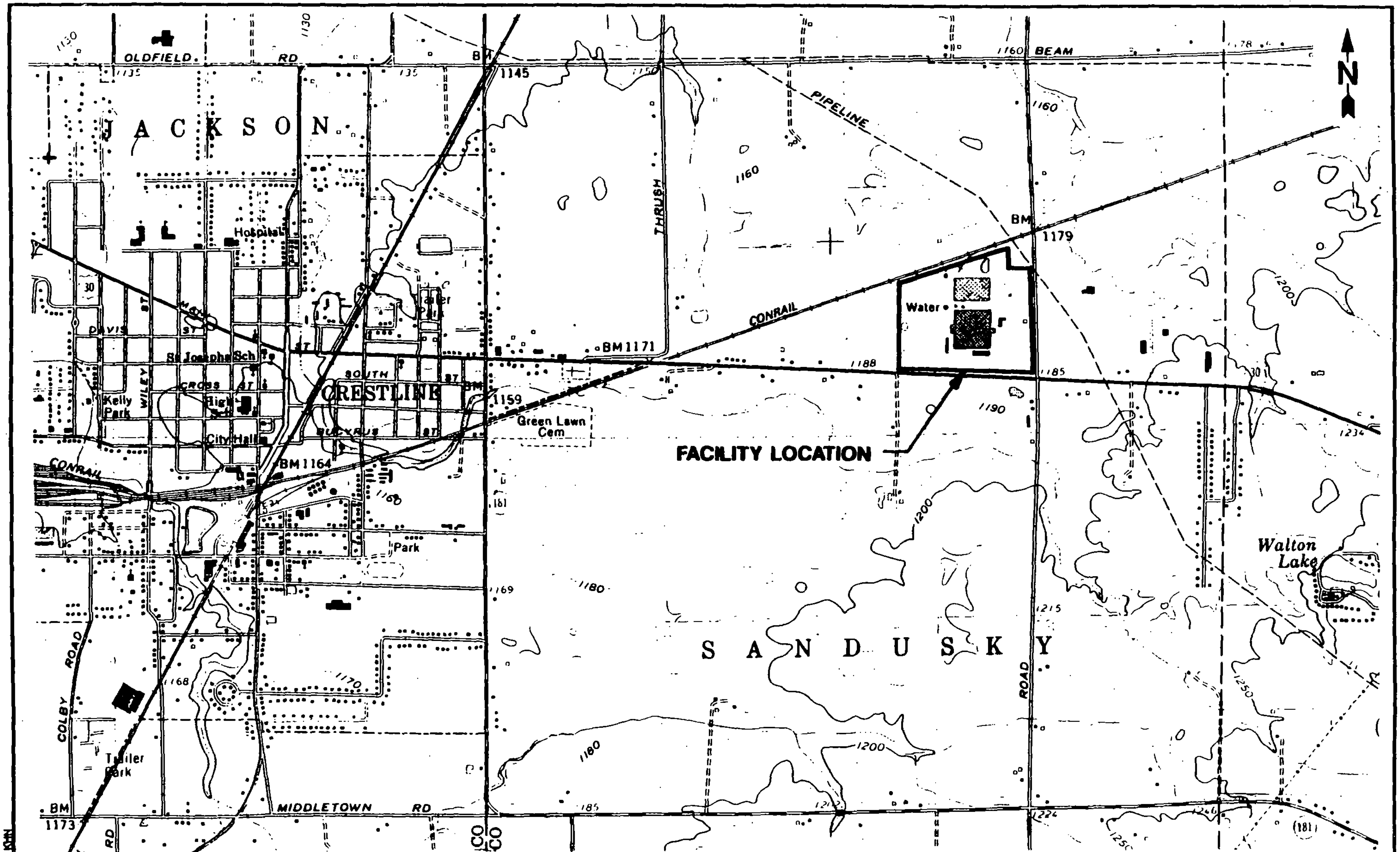
The PPG facility is bordered on the north by the C.A. Jones Farm, on the west by PPG's idle property, on the south by Horning and Arter Farms, and on the east by PPG's idle property and the Laribee Farm.

2.2 FACILITY OPERATIONS

This PPG facility purchases raw glass blocks from other PPG Industries, Inc., plants in different parts of the United States and fabricates automotive and aircraft window glass for major corporations. PPG plant production processes involve 35 separate operations including cutting, edging, drilling, painting, tempering, and soldering equipment. These operations are currently being upgraded to utilize computer-controlled cutting, edging, drilling, painting, and tempering furnaces.

All products manufactured at the PPG facility are tempered safety glass. Before tempering, the raw glass block is cut to the product shape, edged with a diamond wheel, drilled (if necessary), and painted with ceramic bands and silver heating grids. The tempering process involves gradual heating of the glass to approximately 1,300 degrees Fahrenheit (°F), bending it to the desired shape, and then quickly cooling it to retain the new shape. After the tempering process is complete, electrical leads or clips are soldered to the glass if required. At the PPG facility, cutting, edging, and drilling of glass is referred to as the cold process. Painting the glass with ceramic bands and silver heating grids is referred to as the screening process. Tempering and soldering are referred to as the hot process.

Raw materials used at the PPG facility include the following: (1) glass of thickness ranging from 3 to 8 millimeters (mm); a nonhazardous and water soluble coolant; and deionized water in the cold process; (2) ceramic based paints, polyester screens, solvents, and rags in the



SCALE 1:24000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

SCALE: 1" = 2,000'

SOURCE: MODIFIED FROM USGS, 1982

PPG INDUSTRIES, INC. – WORKS 26
CRESTLINE, OHIO

FIGURE 1
FACILITY LOCATION

PRC ENVIRONMENTAL MANAGEMENT, INC.

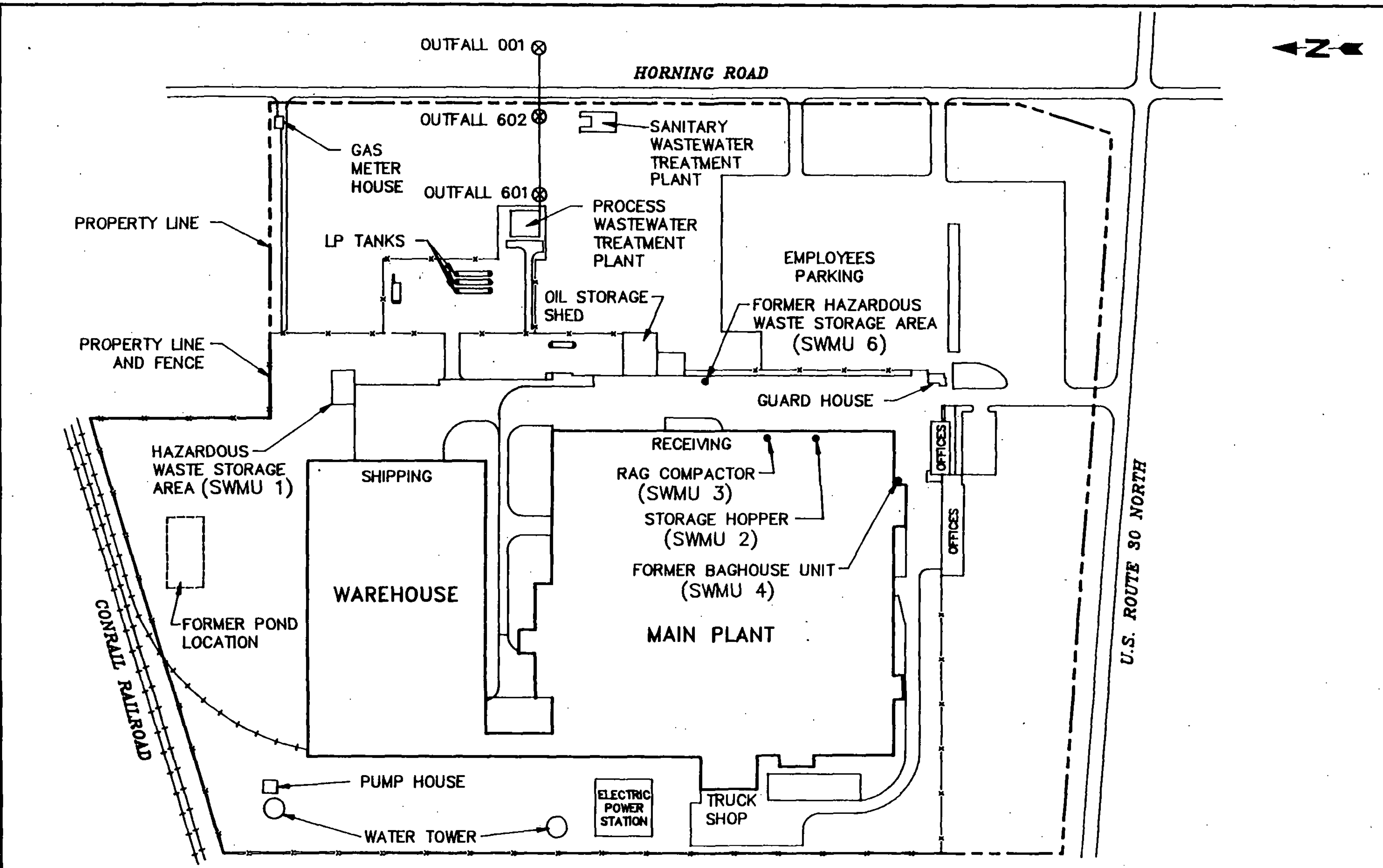
PPG-LOC.DWG – 03/30/92 – KHN

screening process; and (3) electrical clips and leads, air, and standard soldering materials in the hot process. All raw materials and finished products are stored above ground inside the plant. PPG has no plans to install new processing units.

The facility has operated at its current location since 1959 and employs about 700 people. The facility consists of the following: (1) a main plant of 360,000 square feet (ft^2) area with partial basement; (2) a warehouse of 170,000 ft^2; (3) two office buildings of 10,000 ft^2; and (4) several other buildings, including two wastewater treatment plants, a hazardous waste storage area, and an emergency pump station (see Figure 2).

The PPG facility currently generates both hazardous and nonhazardous wastes. The hazardous wastes generated include painted waste glass (painted cullet), paint rags, solvent rags, alcohol rags, waste paints, and waste solvents from the screening process, hot process, and routine equipment cleaning. Nonhazardous wastes generated include waste glass (cullet) and wash water from the cold process, sludge from coolant recovery and process wastewater and sewage treatment operations, waste oil from machine maintenance, and garbage (paper, boxes, and others) from routine plant operations. More information on the wastes generated at the PPG facility is presented in Section 2.3.

Table 1 identifies the current and former solid waste management units (SWMU) at the facility. All hazardous wastes are collected in closed-top, 55-gallon drums and stored in a Hazardous Waste Storage Area (SWMU 1) east of the warehouse. Painted cullet is stored in a 22-ton capacity Storage Hopper (SWMU 2). The paint, solvent, and alcohol flux rags generated from the screening and hot processes are compacted in the main plant by a Rag Compactor (SWMU 3) of 55-gallon capacity before they are transported to the Hazardous Waste Storage Area. The facility operated three other SWMUs that are now inactive. These former SWMUs include a Baghouse Unit (SWMU 4), an Acid Neutralization System (SWMU 5), and a Former Hazardous Waste Storage Area (SWMU 6). SWMU 4 was in an area south of main plant and was removed in 1988. SWMU 5 was in the basement of the main plant and was removed in 1986. Effluent from SWMU 5 was discharged into an unlined pond north of warehouse. In 1986, the pond was filled with clean soil and made inactive. SWMU 6 was in an area east of main plant. PPG informed PRC that none of the former SWMUs required RCRA closure; they were removed when no longer required by the facility (PPG, 1992). The locations of SWMUs 1, 2, 3, 4, and 6 are shown in Figure 2. Figure 2 does not show SWMU 5 which was located in the basement of the main plant.



125' 0 125' 250'
SCALE: 1" = 250'

PPG INDUSTRIES, INC. – WORKS 26
CRESTLINE OHIO

FIGURE 2
FACILITY LAYOUT

PRC ENVIRONMENTAL MANAGEMENT, INC.

SOURCE: MODIFIED FROM PPG SKETCH RECEIVED, JANUARY 1992

PPG-SITE.DWG – 03/30/92 – RAO

TABLE 1
SOLID WASTE MANAGEMENT UNITS (SWMU)

SWMU Number	SWMU Name	RCRA Hazardous Waste Management Unit*	Status
1	Hazardous Waste Storage Area	Yes	Active; Less Than 90-day Storage
2	Storage Hopper	Yes	Active; Less Than 90-day Storage
3	Rag Compactor	Yes	Active; Less Than 90-day Storage
4	Baghouse Unit	No	Inactive; Removed in 1988
5	Acid Neutralization System	Yes	Inactive; Removed in 1986; Not Properly Closed
6	Former Hazardous Waste Storage Area	Yes	Inactive; Removed in 1986; Not Properly Closed

Note:

* A RCRA hazardous waste management unit is one that currently requires or formerly required submittal of a RCRA Part A or Part B permit application.

The PPG facility was built in 1959 by PPG Industries, Inc., to fabricate automotive and specialty glass products. The facility has been owned and operated by PPG Industries, Inc., since 1959. Former land use at the facility's location is unknown; however, based on the present use of PPG facility surroundings, PRC believes that the land might have been used for farming. Over the 32 years of PPG's operation, three processes have been discontinued. These processes include a glass spraying process (known as the NESA process), acid etching using hydrofluoric acid, and chemical tempering. The NESA process used a liquid ("NOW 50" solution manufactured by PPG Industries) from 1975 to 1984, and a powder (dibutyl tin difluoride) from 1984 to 1988. The acid etching process was used from 1963 to 1986. The chemical tempering process was used from 1968 to 1978.

2.3 WASTE GENERATING PROCESSES

In general, both hazardous and nonhazardous wastes are generated at the PPG facility. The primary hazardous waste streams generated at the PPG facility are painted cullet, paint rags, solvent rags, alcohol rags, waste paints, and waste solvents from the screening process, hot process, and routine equipment cleaning. The nonhazardous wastes generated include cullet and washwater from the cold process, sludge from coolant recovery and process wastewater and sewage treatment operations, waste oil from machine maintenance, and garbage (including paper and boxes) from routine plant operations. Specific wastes generated at this facility are discussed below and summarized in Table 2. The annual generation rates presented below are based on 1991 generation data.

The fabrication of window glass products at the PPG facility involves three processes: (1) the cold process, (2) the screening process, and (3) the hot process. In the cold process, a raw glass block is cut to the product shape, edged with a diamond wheel, and drilled, if necessary. Three waste streams are generated during the cold process. The first waste stream contains nonhazardous, water soluble coolant and glass grindings generated while cutting the raw glass block. This waste stream is gravity fed to a coolant recovery system in the basement of the main plant. PPG uses a nonhazardous flocculent to separate glass grindings from the coolant. Recovered coolant is reused in the cold process. Glass grinding sludge is sent to a sludge drier and then disposed of as a nonhazardous waste in Crawford County Landfill, Ohio. PPG generates 562 tons per year of glass grinding sludge. The second waste stream generated in the cold process is cullet. Cullet is collected in hoppers and transported by PPG Industries, Inc. to its Meadville, Pennsylvania, plant for use in glass making. The third waste stream generated in the cold process is wash water from edging and drilling operations. This waste stream is generated when distilled water is used to wash off fine glass grindings adhering to the glass. Wash water is pumped to the process wastewater treatment plant and treated at a rate of 0.287 million gallons per day (MGD).

TABLE 2
SOLID WASTES

Waste/EPA Waste Code	Source	Primary Management Unit*
Glass Grinding Sludge/NA**	Cold Process	NA
Cullet/NA	Cold Process	NA
Wash water/NA	Cold Process	NA
Wastewater Effluent/NA	Process and Sanitary Wastewater Treatment Plants	NA
Wastewater Sludge/NA	Process and Sanitary Wastewater Treatment Plants	NA
Solvent 105 (D001 and D039)	Screening Process	SWMU 1
Solvent ICC 827 (F002 and F005)	Screening Process	SWMU 1
Painted Cullet (D008)	Screening Process	SWMU 2
Paint Rags (D008,D006, and D001)	Screening Process	SWMUs 1 and 3
Waste Paints (D006 and D008)	Screening Process	SWMU 1
Polyester Screens/NA	Screening Process	NA
Painted Cullet (D008)	Hot Process	SWMU 2
Alcohol Rags (D028)	Hot Process	SWMUs 1 and 3
Solvent 420 (F002 and F003)	Equipment Cleaning	SWMU 1
Solvent 420 Rags (D001)	Equipment Cleaning	SWMUs 1 and 3
Waste Oil/NA	Equipment Maintenance	NA

Notes:

* Primary management unit refers to a SWMU that currently manages or formerly managed the waste. Not applicable (NA) indicates that the primary waste management unit is not a SWMU, according to the definition given in Section 1.0.

** Not applicable (NA) designates nonhazardous waste.

The process wastewater treatment consists of equalization, oil skimming, sand filtration, and sludge dewatering. The wastewater effluent from this treatment facility is discharged at Outfall 601, which leads to Paramour Creek, 0.33 mile east of PPG, then through Outfall 001 and an unnamed tributary. Wastewater sludge is dewatered using a filter press and the dewatered sludge is combined with dewatered sludge from the sanitary wastewater treatment plant and then disposed of as a nonhazardous waste in Crawford County Landfill, Ohio. The facility generates 3 tons per year of wastewater sludge. The sanitary wastewater treatment plant discharges its effluent at a rate of 0.047 MGD at Outfall 602. PPG has a National Pollutant Discharge Elimination System (NPDES) permit for discharging effluent from process and sanitary wastewater treatment plants.

In the screening process, five types of wastes are generated: (1) waste solvents, (2) painted cullet, (3) paint rags, (4) waste paints, and (5) polyester screens. Solvent 105 (D001 and D039) and Solvent ICC 827 (F002 and F005) wastes are generated at the rates of 6 tons per year and 600 pounds per year, respectively. These waste solvents are containerized in 55-gallon drums and stored in the Hazardous Waste Storage Area (SWMU 1). The Safety-Kleen Corporation of Kent, Ohio, collects Solvent 105 waste for solvent recovery. Laidlaw of Greensboro, South Carolina, collects Solvent ICC 827 waste for solvent recovery. Painted cullet (D008) generated from screening and hot processes at a rate of 840 tons per year is stored in Storage Hoppers (SWMU 2) and disposed of at Envirosafe in Oregon, Ohio. Paint rags (D008, D006, and D001) are compacted in a Rag Compactor (SWMU 3), transported to the Hazardous Waste Storage Area (SWMU 1), and disposed of at a rate of 6 tons per year at Ross Incineration in Grafton, Ohio. Waste paints (D006 and D008) are stored in the Hazardous Waste Storage Area (SWMU 1) and disposed of at Ross Incineration in Grafton, Ohio. Worn out polyester screens, which are nonhazardous, are collected in a drum, compacted, and then disposed of along with general trash (generated at a rate of 754 tons per year) in the Crawford County Landfill, Ohio.

The hot process generates painted cullet (D008) and alcohol rags (D028). This painted cullet is combined with the painted cullet generated in the screening process and disposed of at Envirosafe in Oregon, Ohio. Alcohol Rags are generated at a rate of 1,500 pounds per year in the soldering operation are compacted in the Rag Compactor (SWMU 3), stored in the Hazardous Waste Storage Area (SWMU 1), and disposed of at Ross Incineration in Grafton, Ohio.

In addition to the glass fabrication operations described above, equipment cleaning and maintenance generates Solvent 420 waste (F002 and F003), Solvent 420 rags (D001), and waste oil at rates of 900 pounds per year, 500 pounds per year, and 1.13 tons per year, respectively. Waste solvent is stored in the Hazardous Waste Storage Area (SWMU 1) and disposed of at Ross

Incineration in Grafton, Ohio. Solvent rags are compacted in the Rag Compactor (SWMU 3), stored in the Hazardous Waste Storage Area (SWMU 1), and disposed of at Ross Incineration in Grafton, Ohio. Waste oil is stored in drums in an oil storage shed and disposed of as nonhazardous waste at Research OIl in Cleveland, Ohio.

2.4 HISTORY OF DOCUMENTED RELEASES

This section discusses the history of documented releases to ground water, surface water, air, and on-site soils at the PPG facility. Two releases at the PPG facility have been documented. The first documented release occurred in September 1985, and the second documented release occurred in October 1986. In September 1985, spill of Deboy's coolant occurred in the basement of main plant. PPG reported the spill to OEPA immediately. The coolant was pumped to a filter and the effluent was discharged to Outfall 001. This discharge was later found to cause fish kill at Outfall 001. Further investigation of this incident revealed that the coolant contained high levels of cyanide. Because of this, PPG discontinued use of Deboy's coolant and started using a nonhazardous, water soluble coolant. The ditch at Outfall 001 was dredged from December 1985 to January 1986. The dredged material was disposed of off site by O.H. Materials in Findley, Ohio (PPG, 1992). PRC requested additional information about this spill from PPG and OEPA regarding analytical data and records of off-site disposal. This information will be included in the PA/VSI report if it is received before the report is finalized.

The second documented release occurred on October 7, 1986. About 500 to 700 gallons of No. 2 diesel fuel was discharged to Outfall 001. PPG immediately reported the incident to OEPA and the National Response Center. The Outfall 001 ditch area and the unnamed tributary were cleaned up by PPG. O.H. Materials of Findley, Ohio, PPG's contractor, collected the fuel using a vacuum system and oil absorbent material. These wastes were disposed of off site by O.H. Materials in Findley, Ohio (PPG, 1992). PRC requested additional information about this spill from PPG and OEPA regarding analytical data and records of off-site disposal. This information will be included in the PA/VSI report if it is received before the report is finalized.

2.5 REGULATORY HISTORY

On August 4, 1980, the PPG facility submitted a Notification of Hazardous Waste Activity to EPA as a generator and treatment, storage, or disposal facility. The facility submitted a RCRA Part A permit application on November 13, 1980. This application specified container storage (S01) and tank treatment (T01) of several F- and D-listed wastes. In June 1982, PPG wrote a letter to EPA for a change to generator only status because PPG planned to store hazardous wastes on site for less than 90 days. The letter also stated that its treatment to reduce fluorides and control pH was part of the NPDES permit and therefore should be excluded from the original Part A permit application. In September 1984, EPA approved PPG's request for generator only status (EPA, 1984). The facility currently operates as a large-quantity generator storing wastes for less than 90 days.

In May 1990, PPG applied for an NPDES permit to discharge effluent from process wastewater treatment plant and sanitary wastewater treatment plant into an unnamed tributary that joins Paramour Creek. In October 1990, OEPA approved the permit application. This permit allows PPG to discharge effluent from the process wastewater treatment plant at Outfall 601 and effluent from sanitary wastewater plant at Outfall 602. These two outfalls flow to Outfall 001, which joins the unnamed tributary. The permit allows PPG to discharge a total flow rate of 0.35 MGD (OEPA, 1991).

PPG has an air permit to operate baghouses for particulate emissions. No air permit compliance problems have been documented. The facility has no history of odor complaints from area residents (PPG, 1992).

OEPA conducted several inspections at the PPG facility. The facility had minor RCRA compliance problems in April 1981 and April 1983. PPG corrected the compliance problems and received notification from OEPA of complying with RCRA regulations (OEPA, 1983). Some of these compliance problems included lack of "danger," "no smoking," or "no open flames" signs at certain locations. PPG took appropriate actions to comply with the applicable regulations and was notified of compliance by OEPA (OEPA, 1983). In February 1991, PPG received a notice of violation from OEPA of its NPDES permit because it exceeded total chlorine residual limit. PPG responded to OEPA that appropriate measures had been taken to comply with the permit (PPG, 1991). OEPA agreed with PPG's response.

2.6 ENVIRONMENTAL SETTING

This section describes the climate, flood plain and surface water, geology and soils, and ground water in the vicinity of the PPG facility.

2.6.1 Climate

The climate in Richland County is temperate. The average daily temperature is 50°F. The lowest average daily temperature is 20°F in January. The highest average daily temperature is 85°F in August. The total annual precipitation for the county is 36 inches. The 1-year, 24-hour maximum rainfall is 2.25 inches (USDC, 1963). The mean annual lake evaporation for the area is about 33 inches (USDC, 1968). The prevailing wind is from the west. Average wind speed is 11 miles per hour (Curry, 1992).

2.6.2 Flood Plain and Surface Water

The PPG facility is not located in a 100-year flood plain (FEMA, 1976). The nearest surface water body, an unnamed tributary to Paramour Creek, is approximately 0.33 mile east of the facility and is used for agricultural and industrial purposes. This surface water body discharges to Sandusky River, which joins Lake Erie. Surface water drains to the north of the facility. Storm water drainage is permitted under the facility's NPDES permit (PPG, 1992).

2.6.3 Geology and Soils

PPG is on a glacial till plain with moderate topographical relief. The till is primarily a tight silty clay with traces of sand and gravel. The till has a high carbonate content and is typically less than 10 feet thick and in some areas up to 15 feet thick. Soils at the facility are part of the Pewamo-Bennigton Association and include Pewamo, Bennington, and Cardington series soils. Bedrock at the site is estimated to be between 40 and 50 feet below ground surface (bgs) (PPG, 1992).

2.6.4 Ground Water

The water table remains at or near ground surface for approximately 6 months per year. Ponding is common at the facility where the water table intersects on-site ditches. Soils at the facility are saturated down to unaltered till, which lies approximately 10 to 15 feet bgs (PPG, 1992).

2.7 RECEPTORS

The PPG facility occupies 50 acres in a rural area in Crestline, Ohio. Crestline has a population of about 9,000 people. The facility is bordered on the north by the C.A. Jones Farm, on the west by PPG idle property, on the south by Horning and Arter Farms, and on the east by PPG idle property and the Laribee Farm. The nearest school, St. Joseph's, is about 2 miles west of the facility. Facility access is controlled by a 6-foot high, chain-link fence completely surrounding the facility, and by security guards on duty 24 hours a day, 7 days a week.

The nearest surface water body, the unnamed tributary to Paramour Creek, is 0.33 mile east of the facility and is used for agricultural and industrial purposes. Other surface water bodies in the area include Walton Lake, which is southeast of the facility.

Ground water is used as an agricultural water supply. The nearest drinking water well is 1 mile east and downgradient of the facility. No sensitive environments are located on site. The nearest wetland area, which is unassociated with the unnamed tributary, is 0.33 mile east of the facility.

3.0 SOLID WASTE MANAGEMENT UNITS

This section describes the six SWMUs identified during the PA/VSI. The following information is presented for each SWMU: description of the unit, dates of operation, wastes managed, release controls, history of documented releases, and PRC observations.

SWMU 1	**Hazardous Waste Storage Area**
Unit Description:	The Hazardous Waste Storage Area is a shed outside and to the east of facility's warehouse. This unit is used to store several wastes including solvents, rags, and paints. All wastes are separately containerized in properly labeled, closed-top, 55-gallon drums. This unit occupies approximately 1,000 ft^2 of floor space and has a metal roof but no walls. The entire floor is a concrete pad with seams, but no visible cracks. A low containment berm (4 inches high) surrounds the concrete pad and appears sufficient to contain a spill within the shed (see Photos No. 1 and 2). The concrete pad also has a dead-end sump to collect spill or rain water so that the liquids can be pumped out. Liquids collected from the sump are treated at Clean Harbor Wastewater Treatment Facility in Cleveland, Ohio.
Date of Startup:	This unit began operation in winter 1986. The exact date is unknown.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages Solvent 105 (D001 and D039), Solvent ICC 827 (F002 and F005), paint rags (D008,D006, and D001), waste paints (D006 and D008), alcohol rags (D028), Solvent 420 (F002 and F003), and Solvent 420 rags (D001). Wastes from this unit are picked up for off-site disposal or recycling by several waste management companies (see Section 2.3).
Release Controls:	This unit has a concrete floor with open seams but no visible cracks. A low containment berm (4 inches high) surrounds the concrete pad, which appears to be sufficient to contain a spill

within the shed. The concrete pad also has a dead-end sump to collect spill or rain water so that the liquids can be pumped out.

History of Documented Releases:	No releases from this unit have been documented.
Observations:	The unit contained several drums of hazardous waste. All drums were labeled. The concrete pad had seams but no visible cracks.
SWMU 2	**Storage Hopper**
Unit Description:	This unit is a large metal hopper covered with a plastic sheet. The plastic sheet is fastened to the hopper by an industrial tape. This unit is inside the main plant building. This unit has 22-ton capacity and stores painted cullet.
Date of Startup:	This unit began operation in September 1991.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages painted cullet (D008). The hopper is loaded on an 18-wheel truck and its contents are disposed of by Envirosafe in a secured landfill in Oregon, Ohio.
Release Controls:	This unit is a large metal hopper covered with a plastic sheet. The plastic sheet is fastened to the hopper by an industrial tape.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The hopper used is similar to those shown in Photo No. 3. The hoppers have no visible cracks.
SWMU 3	**Rag Compactor**
Unit Description:	The rag compactor is a 55-gallon metal container with a metal ram (similar to a piston) that compresses paint rags, solvent rags, and alcohol rags. After compression, the rags are drummed and stored

in the Hazardous Waste Storage Area (SWMU 1). The rag compactor is indoors inside the main plant.

Date of Startup:	This unit began operation in 1986. The exact date is unknown.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages paint rags (D008,D006, and D001), alcohol rags (D028), and Solvent 420 rags (D001). All rags are compacted and sent to Ross Incineration in Grafton, Ohio.
Release Controls:	This rag compactor is a completely enclosed unit. This unit is indoors, inside the main plant.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	This unit has no visible cracks, and the drums used to store rags are properly labelled.
SWMU 4	**Baghouse Unit**
Unit Description:	This Baghouse unit was known as NESA bag house. This unit was used to control particulate air emissions from the NESA process (a glass spray coating process). The unit was outdoors south of main plant. This unit was mounted on a concrete pad and completely enclosed with a drum inside it to collect particulate matter.
Date of Startup:	This unit began operation in 1981. The exact date is unknown.
Date of Closure:	This unit was removed in 1988. The exact date is unknown.
Wastes Managed:	This unit managed air emissions from the NESA process. The facility had an air permit to operate the unit.
Release Controls:	This unit was completely enclosed and was mounted on a concrete pad.

History of Documented Releases:	No releases from this unit have been documented.
Observations:	This unit was removed in 1988. During the VSI, no visible signs of contamination were observed at the location of this former SWMU.
SWMU 5	**Acid Neutralization System**
Unit Description:	The Acid Neutralization System was a 4,000-gallon metal tank in the basement of the main plant. This system was used to neutralize hydrofluoric acid effluent from a glass etching process that operated at PPG facility from 1963 to 1986. Lime was used to neutralize the acid stream. Effluent from this unit was discharged into an unlined pond at the north of the warehouse. Both the Acid Neutralization System and the pond were made inactive when PPG discontinued the etching process. The Acid Neutralization System was removed and the pond was filled with clean soil (see Photo No. 4) in 1986.
Date of Startup:	This unit began operation in 1963. The exact date is unknown.
Date of Closure:	This unit was removed in 1986. The exact date is unknown. This unit was not properly closed.
Wastes Managed:	This unit managed hydrofluoric acid waste stream from the glass etching process.
Release Controls:	This unit was in the basement of the main plant, which has a concrete floor.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The unit was removed in 1986, and the basement was used for collecting cullet in hoppers (see Photo No. 5) and for coolant recovery. During the VSI, no visible signs of contamination were observed at the location of this former SWMU.

SWMU 6	**Former Hazardous Waste Storage Area**
Unit Description:	The Former Hazardous Waste Storage Area was aboveground outside and to the east of the main plant. This unit was used to store several wastes, including solvents, rags, and paints. All wastes were separately containerized in properly labeled, closed-top, 55-gallon drums. This unit occupied approximately 1,600 ft^2 of floor space. The entire floor was paved with asphalt, and a low containment berm (4 inches high) surrounded the floor. The berm was sufficient to contain a spill within the area. The floor also had a dead-end sump to collect spill or rain water so that the liquids could be pumped out. This SWMU was made inactive in winter 1986. Photo No. 6 shows the current condition of this area.
Date of Startup:	This unit began operation in early 1970. The exact date is unknown.
Date of Closure:	This unit was made inactive in winter 1986. This unit was not properly closed.
Wastes Managed:	This unit managed several F- and D-listed wastes similar to those managed by SWMU 1. Wastes from this unit were picked up for off-site disposal or recycling by several waste management companies.
Release Controls:	The entire floor of this unit was paved with asphalt. A low containment berm (4 inches high) surrounded the floor, which was sufficient contain a spill within the area. The area also had a dead-end sump to collect spill or rain water so that the liquids could be pumped out.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The unit is inactive. During the VSI, no visible signs of contamination were observed at the location of this former SWMU.

4.0 AREAS OF CONCERN

PRC identified two AOCs during the PA/VSI. These AOCs are associated with the documented releases discussed in Section 2.4. The AOCs should be considered tentative and will need to be reevaluation after sampling and analytical data from PPG and OEPA are received. These AOCs are discussed below.

AOC 1 Outfall 001

In September 1985, a documented release occurred at Outfall 001 because of a Deboy's coolant spill in the basement of the main plant. PPG reported the spill to OEPA immediately. The coolant was pumped to a filter and the effluent was discharged to Outfall 001. This discharge was later found to have caused a fish kill at Outfall 001. Further investigation of this incident revealed that the coolant contained high levels of cyanide. The ditch at Outfall 001 was dredged from December 1985 to January 1986. The dredged material was disposed of off site by O.H. Materials of Findley, Ohio (PPG, 1992). Core samples from the ditch were collected by PPG during November 1985 and July 1986. Analytical results for the July 1986 sampling round are included in Appendix A. These results show that 20 of the 24 samples had total cyanide concentration below detection limit (0.01 milligrams/kilogram [mg/kg]) and the remaining samples had total cyanide concentration ranging from 0.324 mg/kg to 5.86 mg/kg. Appendix A also identified natural degradation as one of the remedial processes for cyanide in soil. However, no data are available to show that cyanide is not present at this AOC. PRC recommends that additional sampling and analysis be performed at this location for total cyanide in soil to reevaluate this AOC.

AOC 2 Outfall 001 and an Unnamed Tributary

On October 7, 1986, a documented release occurred at Outfall 001 and the unnamed tributary. About 500 to 700 gallons of No. 2 diesel fuel was accidentally discharged to Outfall 001. PPG immediately reported the incident to OEPA and the National Response Center. The Outfall 001 ditch area and the unnamed tributary were cleaned up by PPG. O.H. Materials of Findley, Ohio, PPG's contractor, collected the fuel using a vacuum system and oil absorbent material. These wastes were disposed of off site by O.H. Materials of Findley, Ohio (PPG, 1992). PRC has requested PPG and OEPA for additional information about this spill regarding analytical data and records of off-site disposal. Because PRC has not yet received the analytical data, PRC recommends that the data be reviewed as soon as it is available to reevaluate this AOC.

RELEASED
DATE 5/28/15
RIN #
INITIALS TOC

ENFORCEMENT CONFIDENTIAL

5.0 CONCLUSIONS AND RECOMMENDATIONS

The PA/VSI identified six SWMUs and two AOCs at the PPG facility. Background information on the facility's location, operations, waste generating processes, history of documented releases, regulatory history, environmental setting, and receptors is presented in Section 2.0. SWMU-specific information, such as the unit's description, dates of operation, wastes managed, release controls, history of documented releases, and observed condition, is presented in Section 3.0. AOCs are discussed in Section 4.0. Following are PRC's conclusions and recommendations for each SWMU and AOC. Table 3 summarizes the SWMUs and AOCs at the PPG facility and recommended further actions.

SWMU 1 **Hazardous Waste Storage Area**

Conclusions: This unit is outdoors and has secondary containment consisting of a concrete floor and berm that provides containment in the event of release. This unit has a metal roof to minimize rain water collection, but no walls. The floor has a dead-end sump to collect and pump out liquids collected because of rain or spills. Containers stored in this unit at the time of the VSI were in good condition, and the area is inspected regularly. The unit has no history of documented releases. The potential for release to all environmental media is low.

Recommendations: PRC recommends no further action.

SWMU 2 **Storage Hopper**

Conclusions: This unit is indoors and covered with a plastic sheet. The unit has no history of documented releases. The potential for release to all environmental media is low.

Recommendations: PRC recommends no further action.

SWMU 3 **Rag Compactor**

Conclusions: This unit is indoors and completely enclosed. The unit has no history of documented releases. The potential for release to all environmental media is low.

RELEASED
DATE 5/28/15
RIN # ____
INITIALS TJC

ENFORCEMENT CONFIDENTIAL

TABLE 3
SWMU AND AOC SUMMARY

SWMU	Dates of Operation	Evidence of Release	Recommended Further Action
1. Hazardous Waste Storage Area	1986 to Present	None	None
2. Storage Hopper	1991 to Present	None	None
3. Rag Compactor	1986 to Present	None	None
4. Baghouse Unit	1981 to 1988	None	None
5. Acid Neutralization System	1963 to 1986	None	Closure
6. Former Hazardous Waste Storage Area	1970 to 1986	None	Closure

AOC	Dates of Operation	Evidence of Release	Recommended Further Action
1. Outfall 001	1963 to Present	PPG reported a coolant spill to OEPA in 1985. The coolant was pumped through a filter and discharged at Outfall 001. This coolant was later found to contain cyanide that caused fish kill at Outfall 001.	Perform additional sampling and analysis of soil for cyanide. Evaluate the potential for release and then determine further action.
2. Outfall 001 and an Unnamed Tributary	1963 to Present	PPG reported a diesel fuel spill to OEPA in 1986. PPG's contractor, O.H. Materials, collected the fuel using a vacuum system and oil absorbent material. All wastes were disposed of off site.	Review the sampling and analytical data collected at this outfall after remediating the area. Evaluate the potential for release and then determine further action.

RELEASED
DATE TOC 5/28/15
RIN #
INITIALS TOC

ENFORCEMENT CONFIDENTIAL

Recommendations: PRC recommends no further action.

SWMU 4 **Baghouse Unit**

Conclusions: This unit was outdoors on a concrete pad. This unit was in operation from 1981 to 1988, and was removed in 1988. The unit has no history of documented releases. The potential for release to all environmental media is low.

Recommendations: PRC recommends no further action.

SWMU 5 **Acid Neutralization Tank**

Conclusions: This unit was in the main plant basement with a concrete floor. This unit was in operation from 1963 to 1986, and was removed in 1986. The unit has no history of documented releases. The potential for release to all environmental media is low.

Recommendations: This unit should be closed properly.

SWMU 6 **Former Hazardous Waste Storage Area**

Conclusions: This unit was outdoors and had secondary containment consisting of an asphalt floor and berm that provided containment in the event of a release. The floor had a dead-end sump to collect and pump out liquids collected because of rain or spills. The unit was in operation from 1970 to 1986. The unit has no history of documented releases. The potential for release to all environmental media is low.

Recommendations: This unit should be closed properly.

AOC 1 **Outfall 001**

Conclusions: In September 1985, a Deboy's coolant release occurred at this location. In response to the release, PPG dredged the ditch at this location and disposed of the dredged material off site. PPG also discontinued use of the coolant that contained cyanide, and began using a different coolant. Analytical results for the most recent sampling round (July 1986) showed that 20 of the 24 samples had total cyanide concentration below detection limit and the remaining samples had total cyanide concentration ranging from 0.324 mg/kg to 5.86 mg/kg.

Recommendations: PRC recommends that additional sampling and analysis be performed at this location for total cyanide in soil to reevaluate this AOC.

AOC 2 **Outfall 001 and the Unnamed Tributary**

Conclusions: In October 1986, a diesel fuel release occurred at this location. In response to the release, PPG's contractor, O.H. Materials, collected the fuel using a vacuum system and oil absorbent material, and disposed of the wastes off site. PRC requested sampling and analytical data collected after the cleanup for this AOC. Because PRC has not yet received the data, PRC has tentatively identified Outfall 001 and the unnamed tributary as an AOC.

Recommendations: Analytical data should be reviewed to reevaluate this AOC.

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OEPA, 1991. Letter from OEPA to PPG approving PPG's National Pollutant Discharge Elimination System (NPDES) Permit, March 28.

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U.S. Department of Commerce (USDC), 1963. Rainfall Frequency Atlas of the United States, Technical Paper No. 40, U.S. Government printing Office, Washington, D.C.

USDC, 1968. Climatic Atlas of the United States, U.S. Government Printing Office, Washington, D.C.

U.S. Environmental Protection Agency (EPA), 1984. Letter to PPG Industries, Inc., Works No. 26 (PPG), Approving the Request for Generator Only Status, September 28.

ATTACHMENT A

EPA PRELIMINARY ASSESSMENT FORM 2070-12

EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT

PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
Ohio	OHD 004 199 030

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
PPG Industries, Inc., Works No. 26	5066 State Route (SR) 30

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Crestline	OH	44827	Richland		

09 COORDINATES LATITUDE 40°47'30" N | LONGITUDE 82°42'30" W

10 DIRECTIONS TO SITE *(Starting from nearest public road)*

From the City of Crestline, take SR 30 North; facility is at 5066 SR 30.

III. RESPONSIBLE PARTIES

01 OWNER *(if known)*	02 STREET *(Business, mailing residential)*
PPG Industries, Inc.	

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
			( )

07 OPERATOR *(If known and different from owner)*	08 STREET *(Business, mailing, residential)*

09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
			( )

13 TYPE OF OWNERSHIP *(Check one)*

- [x] A. PRIVATE
- [ ] B. FEDERAL: ____________ *(Agency name)*
- [ ] C. STATE
- [ ] D. COUNTY
- [ ] E. MUNICIPAL
- [ ] F. OTHER ____________ *(Specify)*
- [ ] G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE *(Check all that apply)*

- [x] A. RCRA 3010 DATE RECEIVED: 08 / 04 / 80 (MONTH DAY YEAR)
- [ ] B. UNCONTROLLED WASTE SITE *(CERCLA 103 c)* DATE RECEIVED: / / (MONTH DAY YEAR)
- [ ] C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

- [ ] YES DATE 01 / 23 / 92
- [ ] NO

BY *(Check all that apply)*

- [ ] A. EPA
- [ ] B. EPA CONTRACTOR
- [ ] C. STATE
- [ ] D. OTHER CONTRACTOR
- [ ] E. LOCAL HEALTH OFFICIAL
- [ ] F. OTHER: ____________ *(Specify)*

CONTRACTOR NAME(S): PRC Environmental Management, Inc. (PRC)

02 SITE STATUS *(Check one)*

- [x] A. ACTIVE
- [ ] B. INACTIVE
- [ ] C. UNKNOWN

03 YEARS OF OPERATION

1959 | Present (BEGINNING YEAR ENDING YEAR)

- [ ] UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Solvents (D001, D059, F002, F005, and F003); painted cullet (D008); waste paints (D006 and (D008); paint rags (D008, D006, D001); alcholol rags (D028); sovent rags (D001)

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

The potential for release of hazardous constituents from this facility to environmental media is low.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION *(Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents.)*

- [ ] A. HIGH *(Inspection required promptly)*
- [ ] B. MEDIUM *(Inspection required)*
- [x] C. LOW *(Inspect on time-available basis)*
- [ ] D. NONE *(No further action needed; complete current disposition form)*

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF *(Agency/Organization)*	03 TELEPHONE NUMBER
Kevin Pierard	U.S. EPA	( )

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Kirankumar Topudurti		PRC	(312) 856-8742	03 / 31 / 92 (MONTH DAY YEAR)

ATTACHMENT B

VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS

VISUAL SITE INSPECTION SUMMARY

PPG Industries, Inc. (Works No. 26)
5066 State Route 30
Crestline, Ohio 44827

Date:	January 23, 1992
Facility Representatives:	Jerry Osheka, PPG Manager, Environmental Affairs Susan Corbin, PPG Safety Supervisor
Inspection Team:	Kirankumar Topudurti, PRC Jean Michaels, PRC
Photographer:	Jean Michaels, PRC
Weather Conditions:	Rainy and cloudy; 40°F
Summary of Activities:	The visual site inspection (VSI) began at 8:30 a.m. Eastern Time with an introductory meeting. The inspection team began the meeting with a discussion of the VSI and the agenda for the visit. Mr. Osheka and Ms. Corbin continued with a discussion of PPG's past and current operations, wastes generated, and release history. Most of the information was exchanged on a question-and-answer basis. At 11:30 a.m., Mr. Osheka and Ms. Corbin gave the PRC inspection team a tour of the facility, including production and waste management areas, and explained waste generating processes. The inspection team took photographs of areas related to waste management. At 12:15 p.m., the inspection team took a break for lunch. The tour resumed at 1:15 p.m. and concluded at 3:15 p.m. After the tour, the inspection team held an exit meeting with Mr. Osheka and Ms. Corbin. The VSI ended at 4:00 p.m.

Photograph No. 1
Orientation: Northeast
Description: Hazardous Waste Accumulation Area (Northern Section)

Location: SWMU 1
Date: 01/23/92

Photograph No. 2
Orientation: Northeast
Description: Hazardous Waste Accumulation Area (Southern Section)

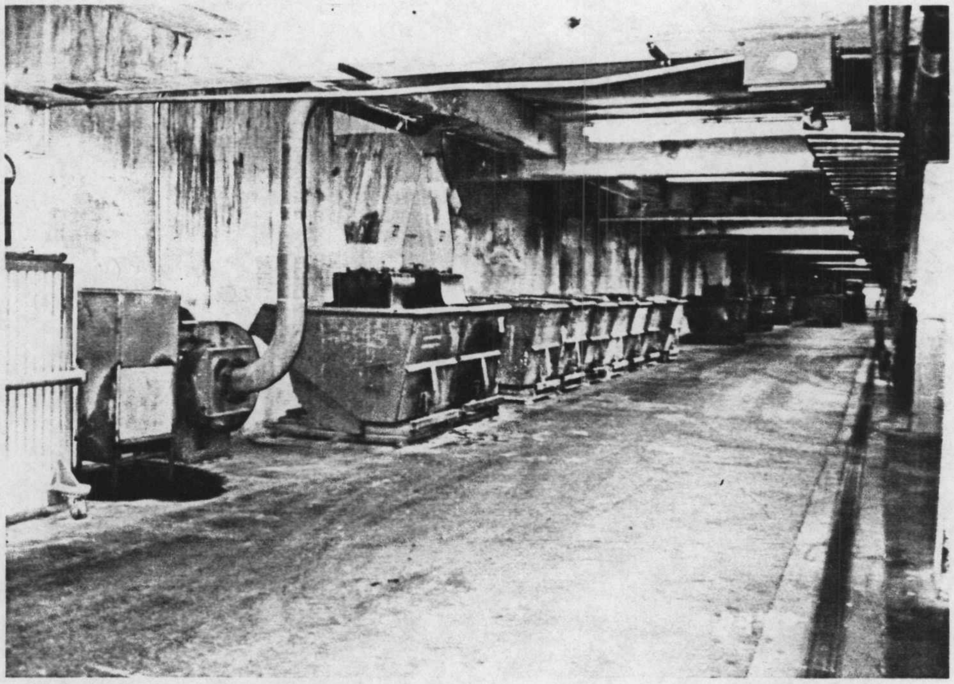
Location: SWMU 1
Date: 01/23/92

Photograph No. 3
Orientation: Northeast
Description: Hoppers Storing Cullet

Location: NA
Date: 01/23/92

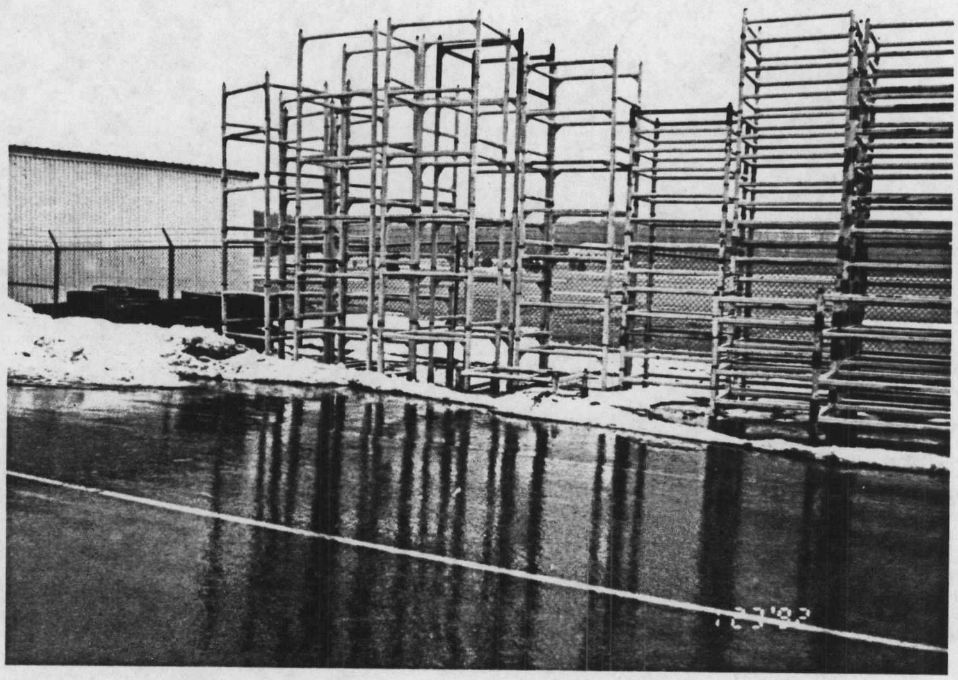
Photograph No. 4
Orientation: Northwest
Description: Former Pond Area Filled With Clean Soil

Location: NA
Date: 01/23/92



Photograph No. 5
Orientation: North
Description: Former Acid Neutralization System Area (The black spot on the left side of the photo shows a machine oil spill)

Location: SWMU 5
Date: 01/23/92



Photograph No. 6
Orientation: Northeast
Description: Former Hazardous Waste Storage Area

Location: SWMU 6
Date: 01/23/92

ATTACHMENT C

VISUAL SITE INSPECTION FIELD NOTES

①

Date 01/23/92

Meeting at 8:45 a.m.

Persons present

Ms. Susan T. Corbin, PPG
Dick Bond, PPG
Mike Hötzel, PPG
Jerry Osheka, PPG
RICH KREHNOVI, PPG

Jerry: brief intro

Jean explained the purpose of meeting (more like checks and balance type, not a CEI). Jerry asked about the chain-of-events. Jean explained that a report will be written and the final report will be sent to PPG. Jerry asked if he could see the report. Jean mentioned that it is unlikely. Jerry asked about the time frame for the report, Jean mentioned that it is about 6 wks.

(2)

Dennis V. Dinato joined the mtg.

Automotive glass fabricating facility (rear, side windows) single ply glass.

- Since 1957
- one major expansion (Mudzo's 74-75)

Purchase glass and do the work.

Over 35 different processes involved. Use glass blocks, put black border paint, bend, temper, etc.

no. of employees -- ~~700~~ 580

~~Jerry~~ RJ

Four people from OHEPA joined.

Jaurine Seacrol, OEPA central, Columbus
Philip Williams, OEPA, NWDO, Bowling Green
Archie Lunsey II, OEPA NWDO, Bowling Green

(3)

Jerry explained that PRC's photos should be limited to SMWUs and AOCs. Send all copies to PPG.

Jerry said windows would be referred to as Lites and broken glass as cullet.

Glass is not produced here. Large cubes of glass come in (come in different shades, bronze, clear etc.). Cut a pattern, mold it to shape, paint, heat treat and packaged.

- Main factory: Raw materials received, cut, stored, heated.
- Boiler area, maintenance area, WW treat. area, loading/unloading (by truck) are there.

Regulatory issues: filed Part A in 1980 as precaution for storage facility (90 days)

Storage pad

Neutralization Unit - (for HF used in etching of glass) -- it is not operation, no longer etch the glass

& Quantity of glass processed?

- Painting (silk screening, cermax based, black binder)
- cutting
- edge grinding
- drilling
- Washing with DI water
- Inspection

Painting, drying in (500°F) oven, (tempering), Ag

Wastes: Cullet (broken glass) collected sent to the basement picked up by original plant and used as raw material to make glass. Cullet is ~~use~~ separated by color. (Not a waste)

Grinding operation - Diamond grinding wheel is used. Coolant is separated from glass, processed thru' filter press. Cake is sent off for disposal at a local landfill. Coolant is water soluble. No chemicals added.

drilling:

ditch (001) outfall →
unnamed tributary → para
moore creek

Hot end process: processed along with cold end water.

Painting process: generates paint rags
shelf life exceeded ⇒ waste

Soldering operation: waste generated are recycled thru ECOFLOW and Ross incinerator.

* 22 tonnes of ~~broken glass~~ painted cullet goes to ~~cullet~~ Envirosafe.

---

collection systems for the grinders of have baghouses

Maintenance:
Mold shop:
Equipment: oils

Lagoon was used for settling pond. Was closed in 1986. The etching process stopped in 1983. Pond was not lined. Data needed.

NESA (Now SO Solution - Logwood farm) discontinued in 1984 started 68-69. Coating of

⑧

HF to conduct electrical current -- liquid.
- Dibutyltindifluoride process (powdered) started 1984-85 discontinued a year and half later. The baghouse was cleaned and moved to PA area.
- Chemical tempering process was started in 67-68 and ended in late 70's.
- Seven underground storage tanks stored diesel fuel for highway trucks and boilers
- Any evidence of release
- Reg. status - Generator

MSDS for coolant (mixed with water)

⑨

spill reports - saved only for 5 years. Had a fishkill in 1985; High levels of cyanide present in the coolant. A spill in the basement was pumped to Henry's filter. (Debay's coolant) no longer used.

FACILITY TOUR

Lines: Raw glass sheets picked automatically unloaded to cutting line. Using diamond cutter the glass etched.
Grinding operation - coolant is used to cool the grinder the coolant is drained to basement.
Deionized water washing recycled using DI
200 gal/wk sent to WW treat plant

(10)

DI columns by Culligan
6/an month ~~3ft~~ 4ft x 1ft
airdrying/
Stacking/storage/forklift

Hot end process (Caprice car)
Back lite
Washer again

Painting operation – black band around the window
Black ceramic based paint –
Polyester screen – paint wiped off with a cloth
cloth goes to a barrel.
3 screens reused based on demand
worn out screens are disposed off as a solid waste

(11)

the rags are put in separate bins (by solvent) for recycling at safetyclean. If it has Ag recycle. Dry the paint at 500°F

– Silver painting does the grid for defrosting (to conduct electricity)
polyester rags also sent for recycling silver along with rags.
No dry for Ag paint.
Straighten the glass
– Tempering at 1250°F Eng
forming operation takes place here
Quenching by air takes place and further cooled < 100°F

- Soldering operation (a clip) is fixed manually.
- Quality check

Pressing ~~projects~~ generate cullets. Rejects and stacked, tested for HW char.

Non HW recycling
HW Env. safe

APPENDIX A

SAMPLING AND ANLYTICAL DATA FOR AOC 1

Rec'd 1-11-88
DC.

A. PPG 26 LAGOON

In July of 1986 Ginosko Consulting was asked to investigate the Cyanide deterioration in the lagoon bottom sediments and perform other studies which would result in recommendations as to the best remedial action to consider for removing the lagoon from service. The two most applicable closure procedures were:

1. Close the lagoon in place.
2. Dredge and dry the bottom sediment for removal.

The lagoon is located on the PPG 26 Manufacturing facility property due north of the paved trailer parking area and due west of Horning Road and South of the C & D railroad tracks.

B. BACKGROUND

The lagoon was originally constructed for the collection of the spent hydroflouric acid solutions which were used in the etch line. The lagoon or pond was utilized for settling out of the hydroflouric solids prior to the supernate being disposed by land application. The etch line was discontinued some years after the construction of the collection pond. The pond was then used for the collection of other substances, such as, the containment of waste coolants used in the manufacturing process. Also the lagoon has been used as a dumping site for waste oils and other waste materials which were utilized in the various manufacturing processes of the plant. It is virtually impossible to discuss all of the materials which at one time were disposed of by the convenient and [illegible] method of [illegible] them into the existing pond. The sediments which resulted from settling were periodically removed as the [illegible] build-up on the bottom. Generally this sediment was dredged and dried on the land adjacent to the lagoon. It is not improbable that the lagoons was used as a disposal site for a great variety of miscellaneous materials over the years, but as will be seen later, the effects of these materials were evaluated with regards to the above objectives.

C. SAMPLING STRATEGY

On July 22, 1986 samples of the lagoon were obtained by Mr. Mark D. Pfeiffer and William F. Pfeiffer. The pattern chosen for the same sampling scheme was similar to that which was previously done in the same lagoon in the fall of 1985. The sampling pattern that was performed is shown on figure 1, which identifies the sample numbers as well as the approximate location of the samples. Samples were take

XC: 1-25-88 To Greg Palchak -

Pond
#1

far into the lagoon as possible. The exact sampling scheme employed earlier could not be utilized in this study because of the decrease water depth. The previous investigation utilized boats on the surface of the lagoon, which enabled us to sample from the center of the lagoon as well as the points closer to the banks.

There were a total of 29 samples taken: 24 bottom samples and 4 bank samples. One sample was taken from the east field outside of the immediate area occupied by the lagoon. Of the 24 bottom sediment samples taken from the lagoon, approximately 20 of these samples were from areas which were covered with water at the time. Sampling was performed by a split spoon sampler, submerged to a depth of 16 inches uniformly throughout the lagoon bottom, to produce a 16 inch core slice. Each core slice was divided into 4 sections at 4 inch depth intervals. Each 4 inch segment was numbered as No. 1, No. 2, No. 3, and No. 4 core slice, each according to a 4 inch depth. The No. 1 core slice represented sampling depth of 12 to 16 inches. Core slice No. 2 represented 8 to 12 inches depth. Core slice No. 3 represented 4 to 8 inches and Core slice No. 4 represented 0 to 4 inches in depth. Each core slice was then composited with regard to location within the lagoon and the depth of core slice. This resulted in core slice No. 1 through No. 4 for each of the 6 designated locations within the lagoon. These lagoon locations were designated as south, southeast, southwest, north, northeast, northwest. The compositing of each core slice according to depth within this location yielded 24 individual samples, from depths of 0 through 16 inches in 4 inch intervals, see Figure 1.

D. <u>FIELD OBSERVATION</u>

At the time of this sampling the lagoon contained considerably less [illegible] than had been seen at any time in the past. When compared to the November [illegible] sampling, the lagoon was [illegible] in volume. The south and southeast portion of the lagoon bottom showed evidence of disruption due to dredging at an earlier time. It was subsequently learned that this material was restored to the lagoon bottom after it had been dredged and allowed to drain on the west bank of the lagoon site. The remaining portions of the lagoon bottom appeared to be essentially unchanged from the previous sampling episode except that direct sunlight had obviously been allowed to penetrate the bottom of the lagoon and some drying had taken place periodically between rains. There were numerous sightings of frogs occupying the aqueous portion of the lagoon at the time of sampling and there was evidence of crustacean activity as well. This biological activity had not been observed in previous visits to the site.

E. <u>ANALYTICAL</u>

An initial analysis was performed on each of the 24 composite

Pond
#2

core slices to determine the cyanide content of each of the core slices. These samples were analyzed for both total and free cyanide. The samples were then further combined with the other core slices of the respective depths to give a total of four (4) samples. In other words, each of the No. 1 core slices were combined to form 1 sample, representing the depth from 14 to 16 inches. All of the No. 2 core slices were combined to give a sample representing depth of 8 to 12 inches. All of the No. 3 core slices were combined to produce a sample representing 4 to 8 inches of depth and all of the No. 4 core slices were combined to produce a sample representing depths to 0 to 4 inches. These samples were then analyzed with respect to the following parameters:

pH	Cadmium
TKN	Total Chrome
Ammonia	Copper
Nitrogen	Iron
Total Phosphorus	Lead
Chlorides	Mercury
Oil and Grease	Nickel
Fluoride	Zinc
% Solids	

Aliquots of these samples were then analyzed for EP Toxicity studies and the volatile fraction of the priority pollutants were also determined on these four core slices. Finally, the various core slices remaining were combined, mixed well and analyzed for pesticides and PCBs.

F. METHODS

Following are the analytical methods used in this study:

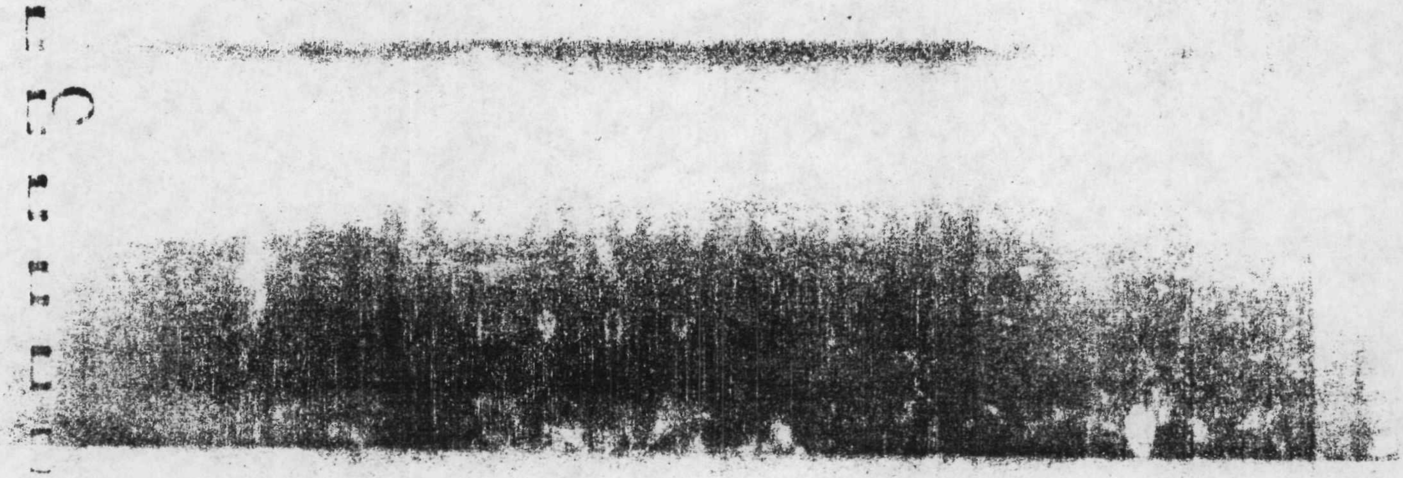
PARAMETER	METHODS SW-846*	US EPA**
Total & Free Cyanides	9010	----
pH	9040	----
TKN	----	351.3
Ammonia Nitrogen	----	350.3
Total Phosphorus	----	365.2
Chlorides	[illegible]	----
Oil & Grease	9070	----
Fluoride	----	340.2
% Solids	----	160.3
All metals were digested for total recoverable metals	3005	
Cadmium	7130	
Total Chromium	7196	
Copper	7210	
Iron	7380	
Lead	7420	
Mercury	7470	
Nickel	7520	

Pond
#3

Zinc		7950
EP Toxicity	Chapter:	7.4
Ignitability	Chapter:	8.1
Pensky-Martens Closed-Cup Method		1010
Volatile Organics		8010 & 8020
Pesticides/PCBs		8540 & 8080

* U.S. Environmental Protection Agency, July 1982, SW-846 Test Methods for Evaluating Solid Wastes, Office of Solid Wastes and Emergency Response, Washington, DC 20460.

** U.S. Environmental Protection Agency, EPA-600/4-79-020, March 1983, Methods for Chemical Analysis of Water and Wastes, Environmental Monitoring and Support Laboratory, Office of Research and Development, Cincinnati, Ohio 45268.



Pond
#4

G. ANALYTICAL RESULTS

The following are the results of the analyses on the individual core samples as core slices.

Lab. No.		Cyanide-Total	Cyanide-Free
	South Sampling Site #5-#8		
072286-13	#1	<0.010 mg/kg	<0.010 mg/kg
072286-14	#2	<0.010 mg/kg	<0.010 mg/kg
072286-15	#3	<0.010 mg/kg	<0.010 mg/kg
072286-16	#4	<0.010 mg/kg	<0.010 mg/kg
	Southwest, Sampling Site #9-#12		
072286-17	#1	<0.010 mg/kg	<0.010 mg/kg
072286-18	#2	<0.010 mg/kg	<0.010 mg/kg
072286-19	#3	<0.010 mg/kg	<0.010 mg/kg
072286-20	#4	<0.010 mg/kg	<0.010 mg/kg
	Northwest, Sampling Site #13-#16		
072286-21	#1	<0.010 mg/kg	<0.010 mg/kg
072286-22	#2	<0.010 mg/kg	<0.010 mg/kg
072286-23	#3	<0.010 mg/kg	<0.010 mg/kg
072286-24	#4	<0.010 mg/kg	<0.010 mg/kg
	North, Sampling Site #17-#20		
072286-25	#1	<0.010 mg/kg	<0.010 mg/kg
072286-26	#2	<0.010 mg/kg	<0.010 mg/kg
072286-27	#3	<0.010 mg/kg	<0.010 mg/kg
072286-28	#4	<0.010 mg/kg	<0.010 mg/kg
	Northeast, Sampling Site #21-#24		
072286-29	#1	<0.010 mg/kg	<0.010 mg/kg
072286-30	#2	<0.010 mg/kg	<0.010 mg/kg
072286-31	#3	5.86 mg/kg	<0.010 mg/kg
072286-32	#4	[illegible] mg/kg	<0.010 mg/kg
	Southeast, Sampling Site #25-#28		
072286-33	#1	0.583 mg/kg	<0.010 mg/kg
072286-34	#2	<0.010 mg/kg	<0.010 mg/kg
072286-35	#3	<0.010 mg/kg	<0.010 mg/kg
072286-36	#4	1.29 mg/kg	<0.010 mg/kg

Pond #5

FIGURE 1

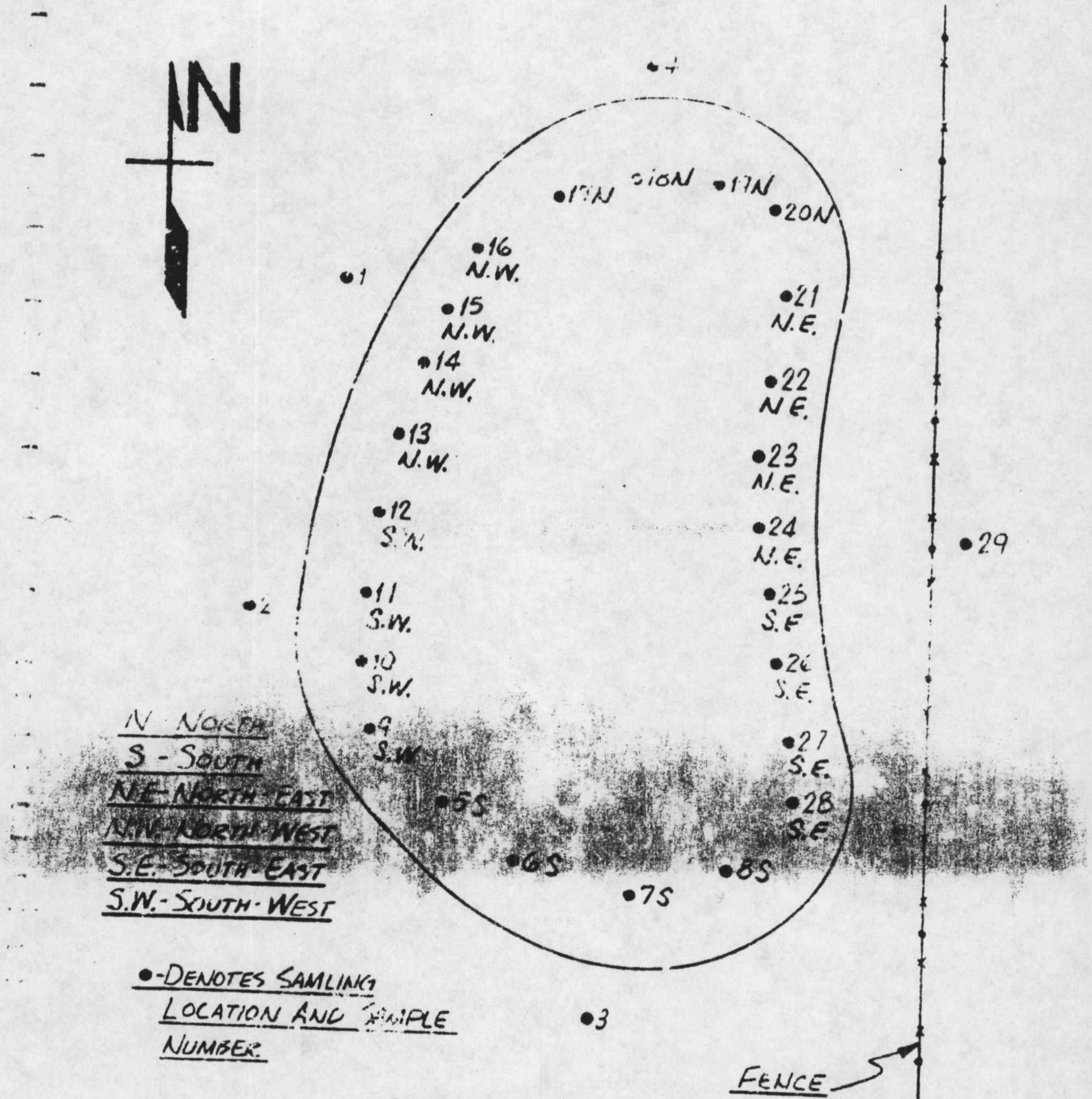
LAGOON SAMPLING LEGEND

August 18, 1986

The following are the core sample composit procedures based on the laboratory numbers of these samples reflecting the mannor in which the final four (4) combinations were obtained. The lagoon bottom samples were combined in regards to the depth of the various layers found in the core samples. The composit numbers represent the following depths: Core slice # 1 from 12 inches to 16 inches, Core slice # 2 from 8 inches to 12 inches, core slice # 3 from 4 inches to 8 inches, and core slice # 4 from 0 inches to 4 inches. This resulted in four composite samples in which the #1 core slices, the #2 core slices, the #3 core slices, and the #4 core slices were combined.

Sample Location	Composite #1 Core Slices #1	Composite #2 Core Slices #2	Composite #3 Core Slices #3	Composite #4 Core Slices #4
Sample depth	12" to 16"	8" to 12"	4" to 8"	0" to 4"
	Laboratory Numbers			
S. Lag. #5-#8	072286-13	072286-14	072286-15	072286-16
S.W. Lag. #9-#12	072286-17	072286-18	072286-19	072286-20
N.W. Lag. #13-#16	072286-21	072286-22	072286-23	072286-24
N. Lab. #17-#20	072286-25	072286-26	072286-27	072286-28
N.E. Lag. #21-#24	072286-29	072286-30	072286-31	072286-32
S.E. Lag. #25-#29	072286-33	072286-34	072286-35	072286-36

Pond #6



PPG Crestline

Lagoon Sampling Layout

(Not to Scale)

Pond #7

LAGOON BANK AND FIELD SAMPLES

The following are the results of the Samples surrounding the lagoon and are located as indicated.

Laboratory No.	072286-10	072286-11	072286-12	072286-29
Sample ID	#1 North Bank	#2 West Bank	#3 South Bank	East Field
Fluoride	<0.01 mg/kg	<0.01 mg/kg	<0.01 mg/kg	<0.01 mg/kg
% Solids	85.9 %	80.6 %	85.8 %	85.2 %
Cadmium	<0.001 mg/kg	<0.001 mg/kg	<0.001 mg/kg	<0.001 mg/kg
T. Chrome	6.5 mg/kg	7.25 mg/kg	3.14 mg/kg	2.8 mg/kg
Copper	11.2 mg/kg	13.9 mg/kg	5.39 mg/kg	6.8 mg/kg
Iron	7,961 mg/kg	7,356 mg/kg	2,795 mg/kg	2,742 mg/kg
Lead	7.18 mg/kg	12.20 mg/kg	8.98 mg/kg	2.3 mg/kg
Mercury	0.086 mg/kg	0.124 mg/kg	0.048 mg/kg	0.030 mg/kg
Nickel	6.67 mg/kg	29.4 mg/kg	8.33 mg/kg	1.01 mg/kg
Zinc	26.9 mg/kg	93.4 mg/kg	53.1 mg/kg	20.6 mg/kg
Cyanide T.	<0.010 mg/l	<0.010 mg/l	<0.010 mg/l	<0.010 mg/l
Cyanide F.	<0.010 mg/l	<0.010 mg/l	<0.010 mg/l	<0.010 mg/l

Pond
#8

EP TOXICITY STUDIES ON PPG LAGOON SEDIMENTS

The following are the results of the EP Toxicity analyses of the core slice composite samples.

PARAMETER	Comp #1	Comp #2	Comp #3	Comp #4
pH (Corr.)	9.40 s.u.	9.14 s.u.	9.09 s.u.	8.96 s.u.
Arsenic	0.006 mg/l	0.005 mg/l	<0.004 mg/l	0.006 mg/l
Barium	0.530 mg/l	0.505 mg/l	0.510 mg/l	0.540 mg/l
Cadmium	<0.001 mg/l	<0.001 mg/l	<0.001 mg/l	<0.001 mg/l
T. Chrome	<0.003 mg/l	<0.003 mg/l	<0.003 mg/l	<0.003 mg/l
Hex. Chrome	<0.003 mg/l	<0.003 mg/l	<0.003 mg/l	<0.003 mg/l
Lead	<0.003 mg/l	<0.003 mg/l	<0.003 mg/l	<0.003 mg/l
Mercury	<0.0002 mg/l	0.0002 mg/l	0.0005 mg/l	<0.0002 mg/l
Selenium	<0.008 mg/l	<0.004 mg/l	<0.008 mg/l	<0.008 mg/l
Silver	<0.002 mg/l	<0.002 mg/l	<0.002 mg/l	<0.002 mg/l
Reactivity				
Sulfide	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Cyanide	<0.010 mg/l	<0.010 mg/l	<0.010 mg/l	<0.010 mg/l
Ignitability (85 deg. C.)	Negative	Negative	Negative	Negative

Pond
#9

PPG Lagoon Studies

July 29, 1986

Following are the results the samples that were analysed for volatile organics.

ALL RESULTS ARE REPORTED IN mg/kg

Laboratory No.	Comp. # 1	Comp. # 2	Comp. # 3	Comp. # 4
Acrolein	<1.0	<1.0	<1.0	<1.0
Acrylonitrile	<1.0	<1.0	<1.0	<1.0
Benzene	<0.5	<0.5	<0.5	<1.0
Bromoform	<0.10	<0.10	<0.10	<0.10
Carbon Tetrachloride	<0.10	<0.10	<0.10	<0.10
Chlorobenzene	<0.05	<0.05	<0.05	<0.05
Chlorodibromomethane	<0.10	<0.10	<0.10	<0.10
Chloroethane	<1.0	<1.0	<1.0	<1.0
2-Chloroethylvinyl Ether	<0.10	<0.10	<0.01	<0.01
Chloroform	<0.10	<0.10	<0.10	<0.10
Dichlorodibromomethane	<0.10	<0.10	<0.10	<0.10
Dichlorodifluoromethane	<0.10	<0.10	<0.10	<0.10
1,1-Dichloroethane	<0.10	<0.10	<0.10	<0.10
1,2-Dichloroethane	<0.10	<0.10	<0.10	<0.10
1,1-Dichloroethylene	<0.10	<0.10	<0.10	<0.10
1,2-Dichloropropane	<0.10	<0.10	<0.10	<0.10
Cis-1,3-Dichloropropene	<0.10	<0.10	<0.10	<0.10
Trans-1,3-Dichloropropene	<0.10	<0.10	<0.10	<0.10
Ethyl Benzene	<0.05	<0.05	<0.05	<0.05
Methyl Bromide	<1.00	<1.00	<1.00	<1.00
Methyl Chloride	<1.00	<1.00	<1.00	<1.00
Methylene Chloride	<0.10	<0.10	<0.10	<0.10
1,1,2,2-Tetrachloroethane	<0.10	<0.10	<0.10	<0.10
Tetrachloroethylene	<0.10	<0.10	<0.10	<0.10
Toluene	<0.05	<0.05	<0.05	<0.05
Trans-1,2-Dichloroethylene	<0.10	<0.10	<0.10	<0.10
1,1,1-Trichloroethane	<0.10	<0.10	<0.10	<0.10
1,1,2 Trichloroethane	<0.10	<0.10	<0.10	<0.10
Trichloroethylene	<0.10	<0.10	<0.10	<0.10
Trichlorofluoromethane	<0.10	<0.10	<0.10	<0.10
Vinyl Chloride	<1.00	<1.00	<1.00	<1.00
Total Aromatics	911.00	952.00	2,800.00	1,300.00
Total Aliphatics	42,200.00	52,400.00	121,000.00	82,000.00

Pond

#10.

PPG LAGOON STUDIES FOR PCB AND PESTICIDES

The following are the results of the analysis of Composite #4 for Pesticides and PCB.

COMPOUND	
Aldrin	<0.02 ug/l
alpha-BHC	<0.01 ug/l
beta-BHC	<0.01 ug/l
gamma BHC	<0.01 ug/l
delta BHC	<0.01 ug/l
Chlordane	<0.10 ug/l
4,4'-DDD	<0.02 ug/l
4,4'-DDE	<0.02 ug/l
[illegible]	[illegible] ug/l
[illegible]	[illegible] ug/l
Endosulfan I	<0.02 ug/l
Endosulfan II	<0.02 ug/l
Endosulfan Sulfate	[illegible] ug/l
Endrin	[illegible] ug/l
Endrin Aldehyde	[illegible] ug/l
Heptachlor	<0.02 ug/l
Heptachlor Epoxide	<0.03 ug/l
Toxaphene	<1.0 ug/l
PCB-1016	<0.10 ug/l
PCB-1221	<0.10 ug/l
PCB-1232	<0.10 ug/l
PCB-1242	<0.10 ug/l
PCB-1248	<0.10 ug/l
PCB-1254	<0.10 ug/l
PCB-1260	<0.10 ug/l

Pond
#11

The following are the results of the initial analyses performed on the composited core slice samples.

LAB NO. / PARAMETER	072486-12 COMP. #1	072486-13 COMP. #2	072486-14 COMP. #3	072406-15 COMP. #4
pH	9.30 s.u.	9.09 s.u.	8.98 s.u.	8.99 s.u.
TKN	2393 mg/kg	2057 mg/kg	2548 mg/kg	2029 mg/kg
Ammonia	830 mg/kg	534 mg/kg	456 mg/kg	601 mg/kg
T. Phos.-P	331 mg/kg	246 mg/kg	283 mg/kg	582 mg/kg
Chlorides	1576 mg/kg	6554 mg/kg	4881 mg/kg	2723 mg/kg
Oil-Grease	6465 mg/kg	4396 mg/kg	23483 mg/kg	7549 mg/kg
Fluoride	2098 mg/kg	3505 mg/kg	5866 mg/kg	4892 mg/kg
% Solids	39.4 %	37.2 %	35.8 %	46.3 %
Cadmium	<0.001 mg/kg	<0.001 mg/kg	<0.001 mg/kg	<0.001 mg/kg
T.Chromium	15.6 mg/kg	15.3 mg/kg	15.4 mg/kg	16.3 mg/kg
Copper	23.4 mg/kg	27.4 mg/kg	26.4 mg/kg	22.8 mg/kg
Iron	6421 mg/kg	6207 mg/kg	5827 mg/kg	9742 mg/kg
Lead	44.6 mg/kg	51.2 mg/kg	66.2 mg/kg	42.3 mg/kg
Mercury	0.250 mg/kg	0.267 mg/kg	0.181 mg/kg	0.270 mg/kg
Nickel	20.7 mg/kg	13.6 mg/kg	<0.009 mg/kg	<0.009 mg/kg
Zinc	44.0 mg/kg	46.0 mg/kg	51.3 mg/kg	48.6 mg/kg

Pond #12

H. **DISCUSSION OF RESULTS**

The Cyanide concentrations of the 24 individual Core analysis which resulted from the analysis of Laboratory Numbers 072286-13 through 072286-36 showed marked deterioration of the cyanide concentration as compared to the previous sampling of November 1985. There were four (4) core slices showing any residual Total Cyanides. These were:

1. Laboratory Number 072286-31 from the northeast site (Core slice No. 3), had a Total Cyanide of 5.86 mg/kg.

2. Sample No. 072286-32, also from the northeast site (Core slice No. 4), showed a residual Total Cyanide of 0.324 mg/kg.

3. Sample No. 072286-33 from the southeast site (Core slice No. 1), with a Total Cyanide of 0.589.

4. Sample No. 072286-36, also from the southeast site, (Core slice No. 4), with a Total Cyanide of 1.39 mg/kg.

All other samples indicated the residual Total Cyanide of below detectable limits. There was no free Cyanide demonstrated in any of the samples. When these results are compared with the analytical results of November 1985, it is obvious that dramatic improvement has resulted from the exposure of the lagoon bottom to the sunlight and drying conditions produced by little or to no aqueous cover. Those concentrations of Cyanide which were shown are not particularly elevated to the point which would cause any particular problem for closing the lagoon in place.

The other data accumulated from laboratory analysis demonstrates the following characteristics. The pH of the core samples, although slightly alkaline, does not represent any particular problem. The TOC and total ammonia nitrogen also do not represent extraordinarily high residual amounts as compared to soil samples of agricultural lands in this area. The soil content of nitrogen often averages between 45 and 100 pounds per acre. Total phosphorus as elemental P is also of no major concern. The average virgin soils in central and north central Ohio average approximately 34 to 40 pounds per acre of phosphorus. Off times the agricultural lands, utilized for farming in this area, will contain upwards of 100 to 15 pounds of phosphorus per acre. Chloride levels in sample composites #2 and #3, are marginally high. Considering the chloride content of most soils in and around central Ohio, the levels demonstrated in these samples of 6554 mg/kg and 4881 mg/kg are not of any particular hazard level. Chloride content of agricultur

Pond
#13

farm land in this area is generally considered to be approximately 1000 mg/kg to 2000 mg/kg of soil. Considering the dilution effect of soil being added to the lagoon for closing in place, the mixture of the soils with this chloride content will dilute this level to those which are of acceptable levels. The oil and grease content, although somewhat high in the #3 composite sample, again, does not represent a hazardous situation when considering closure of this lagoon in place. The fluoride content of composite #3 is also marginally high. However, when considering the use of the lagoon as a storage place, and intermediate destruction site for fluoride containing materials, these levels do not represent a particularly startling concentration of this element. The soils in central Ohio naturally contain high levels of fluoride and fluorine compounds. The major fluoride materials are fluorospar, and cyrolite. Fluoride is ubiquitous throughout the environment, occurring in all major segments of soils. The US surface soils, from 0 to 3 inches in depth, generally contain a concentration between 20 and 500 ppm, with an average of 200 ppm. The US soils from 0 to 12 inches generally contain between 20 and 1620 ppm of fluoride, with an average of 300 ppm. The fluoride concentrations of the various core slices are in excess of these averages, however, when considering the dilution effect, of closing this lagoon in place with virgin soils, the dilution effect will vastly dissipate the concentration of the fluoride compounds. We do not consider these levels to be prohibitive to the closing of this lagoon in place, nor do they represent levels that are untenable, especially when considering the fact that this land will not be used for agricultural purposes in the near future. Toxic effects, due to fluorides in the ecological system, generally does not occur until the levels exceed 4000 to 5000 ppm. These conditions are more pronounced when these levels are demonstrated in the first 12 to 15 inches of the soil. Sine the lagoon bottom will be some 10 to 20 feet below the surface, and when considering the dilution factor, the fluorides do not represent a particular problem. The results of the heavy metal analyses do not indicate any concentration of metal ions that would propose a particular problem contrary to closing the lagoon in place. None of the concentrations of metals were in excess of the toxic limitations of heavy metals in subsurface soils. The only metal of any question is the concentration of lead that occurred in all of the core slices. This, again, will undergo tremendous dilution when incorporated into the fill dirt of the closure of the lagoon and will therefore present no particular problem.

The EP Toxicity test is designed to show the potential leachability of substances in slightly acid conditions. All of the samples are well within the parameters allowed for landfill disposal of these substances and therefore do not present any particular difficulty or hazard for the closure of this lagoon. It is doubtful that the acid conditions represented by the EP Toxicity procedure would be duplicated

Pond
#14

after the closing of this lagoon. The soil pH favors the non leachability of this material due to acidity. The analysis of the samples taken in the bank areas show no particular element which is questionable or high in regards to the comparison with those of the lagoon bottom. The analytical results, in all samples, are comparable to concentrations of these elements found in agricultural soils in areas throughout central and north central Ohio. The sample taken from the east field, laboratory #072286-29, presents a relatively normal soil sample and can be used as a comparison to the other three bank samples. The metals, chromium, copper, lead and nickel, are elevated in the bank samples as compared to the east field sample. However, they are not disproportionate when considering the fact that these bank areas have been used in the past as location site for bottom dredgings from the lagoon itself. The organic analysis performed for the volatile organics were of no particular consequence. There were no priority volatile organics demonstrated in these studies. The analysis of the composite for pesticides and PCBs were all below detectable limits.

I. SUMMARY

In conclusion, marked reduction of the cyanide concentrations of the bottom sedimentation has been demonstrated in this follow-up study. By de-watering the lagoon and exposing the bottom sediment to direct sunlight, the expected deterioration of the cyanide content has, as predicted, being achieved. In comparison with the results of the study preformed in the fall of 1985, the cyanide levels are markedly decreased. The only sample showing cyanide to be present in any amounts, were from samples located on the east side of the lagoon. These were in core slices No. 3 and core slices No. 4 of samples taken along the east side of the lagoon. The highest of the levels found were 5.86 mg/l. The same area sampled in the fall of 1985, showed 7,654 mg/kg of cyanide. This area of the pond always had some water cover and were not reduced as fully as the other areas. The residual cyanide found in this study do not constitute a problem to closing the lagoon in place. The virgin earth which will be placed on top of these soils will dilute the cyanide content to a level substantially below toxic or hazardous levels. The reductions which were demonstrated are remarkable, especially when considering that the bottom sediments ranged in value from a high of 8,758 mg/kg to a low of 299 mg/kg in the 1985 study. The samples from this study reveal only the four (4) areas with detectable cyanide, ranging in a high of 5.86 to a low of 0.324 mg/kg. The other accumulated analytical results, as has been previously discussed, are not contrary to closing of the lagoon in place. The field observations and the analytical results are compatible to recommendations to close this lagoon in place, by the method described above. Filling this lagoon with "virgin" soil hauled in from other areas is recommended for the fill material.

In the consideration of this consulting firm, the closing of

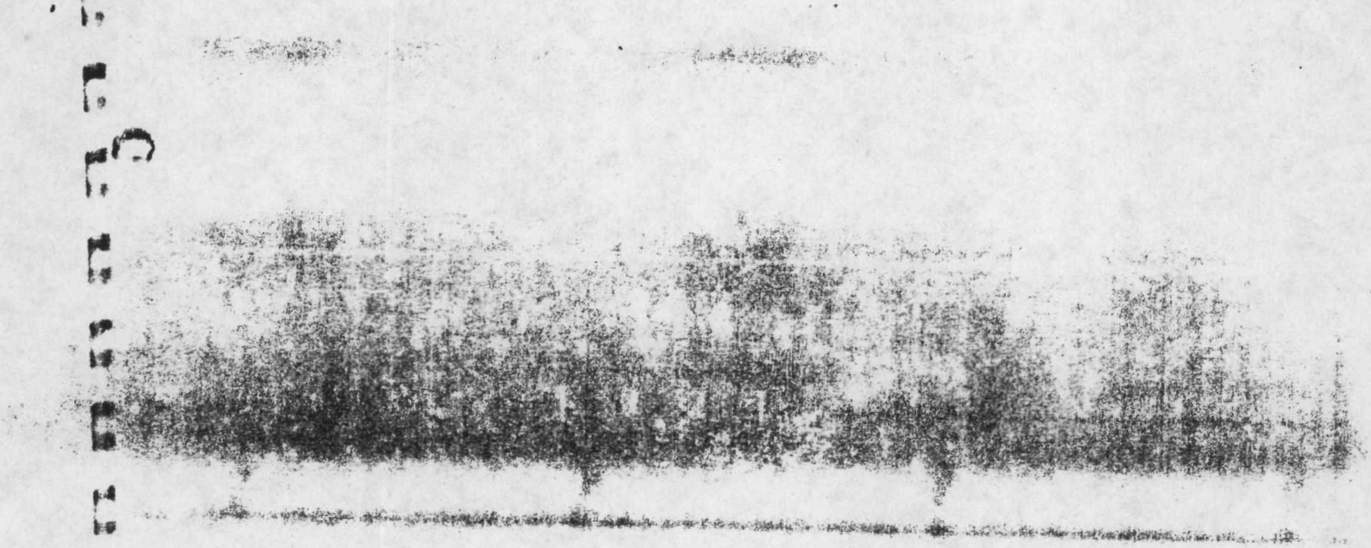
Pond
#15

this lagoon in place represents a feasible method of remedial action for the removal of service of this lagoon. We recommend that the use of virgin soils other than those which are located in the immediate bank area be utilized for deposit upon the lagoon bottom with the bank than being closed in by leveling to grade in accordance with the terrain requirements of PPC.

William F. Pfeiffer, Ch.D.
Director of Operations

Coleen M. Daer
Assist. Director

Mark D. Pfeiffer
Spec. Proj. Supervisor



Pond
#16

Quality Control Data

Parameter	Lab. No.	Analysis without spike mg/kg	Amount of Spike mg/kg	Analysis Spiked sample mg/kg	Percent Recovery %	Std. true value mg/l	Std found mg/l
T. Cyanide	072286-14	<0.01	2.80	2.15	77	0.561	0.498
	072287-17	<0.01	5.61	5.59	100	0.224	0.264
	072287-27	<0.01	1.40	1.31	94	---	---
	072287-36	1.390	0.56	2.03	104	---	---
TKN	072486-12	2393	10.0	2375	99	10.0	9.58
	072486-13	2257	10.0	2210	98	5.18	5.02
	072486-14	2548	100.	2579	97	---	---
	072486-15	2029	100.	2057	97	---	---
Ammonia-N	072486-12	830	100.	865	93	1.00	0.94
	072486-13	534	100.	589	93	0.50	0.48
	072486-14	456	100.	501	90	0.10	0.09
	072486-15	601	100	662	94	---	---
T. Phosphorus	072486-12	331	100	389	90	5.00	4.79
	072486-12	246	50	282	95	10.0	10.14
	072486-14	[illegible]	100	385	101	1.0	0.97
	072486-15	532	100	634	98	---	---
Chlorides	072486-12	1576	100	1600	95	51.70	50.2
	072486-13	6554	100	6590	99	150	154
	072486-14	4881	250	4763	93	300	289
	072486-15	2728	250	2840	96	---	---
Oil & Grease	072486-12	6465	---	---	---	34.0	29.8
Flouride	072486-12	20[illegible]	---	---	---	2.16	2.08
	072486-13	3505	---	---	---	0.87	0.78
	072486-14	5866	250	5989	98	0.11	0.09
Cadmium	072486-12	<0.001	0.025	0.023	92	0.25	0.22
	072486-13	<0.001	0.006	0.006	100	0.10	0.12
	072486-14	<0.001	0.025	0.027	107	---	---
	072486-15	<0.001	0.025	0.021	84	---	---
T. Chromium	072486-12	15.6	0.10	15.08	96	0.10	0.11
	072486-13	15.3	0.20	15.00	97	0.25	0.23
	072486-14	15.4	0.50	15.34	96	---	---
	072486-15	16.3	1.00	16.83	99	---	---

Pond
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Copper	072486-12	23.4	1.00	23.89	96	0.10	[illegible]
	072486-13	27.4	5.00	31.66	98	0.50	0.48
	072486-14	26.4	5.00	31.76	101	---	---
	072486-15	22.8	5.00	26.08	94	---	---
Iron	072486-12	6421	1000	6499	[illegible]	---	[illegible]
	072486-15	9742	1000	9720	99	0.50	0.49
Lead	072486-12	44.6	10.	49.83	91	0.25	0.24
	072486-13	51.2	10	59.91	98	0.50	0.51
	072486-14	66.2	10	63.72	84	---	---
	072486-15	42.3	10	52.16	100	---	---
Mercury	072486-12	0.25	0.10	0.33	94	0.01	0.009
	072486-13	0.267	0.10	0.351	96	0.05	0.051
	072486-14	0.181	0.10	0.224	80	---	---
	072486-15	0.270	0.10	0.366	99	---	---
Nickel	072486-12	20.7	10.0	28.81	94	1.00	0.97
	072486-13	13.6	10.0	19.35	82	0.50	0.48
	072486-14	<0.009	10.0	9.88	99	0.25	0.25
	072486-15	<0.009	10.0	9.16	92	---	---
[illegible]	072486-12	44.0	10.0	52.20	97	0.50	0.47
	072486-13	46.0	10.0	56.23	104	1.00	1.00
	072486-14	51.3	10.0	59.80	98	1.50	1.49
	072486-15	48.6	10.0	55.99	96	---	---

Pond

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